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STATEMENT OF WORK FOR CONDUCTING A REMEDIAL INVESTIGATION/ FEASIBILITY STUDY AT THE BELOIT CORPORATION, ROCKTON, IL FACILITY

This document is the Statement of Work (SOW) for conducting a Remedial Investigation (RI) and Feasibility Study (FS) at the Beloit Corporation, Rockton facility located in Winnebago County, Illinois. The facility, as noted in the consent decree, is defined by the following boundaries: Prairie Hill Road to the north; an access road from the Rock River to Blackhawk Boulevard on the south; the Rock River to the west; and Blackhawk Boulevard to the east. The purpose of this SOW is to provide the direction and intent of the RI/FS. Within 60 days of the effective date of the Consent Decree a Draft RI/FS Work Plan will be submitted that provides detailed guidance for the execution of the RI/FS.

What about areas with where contamination Prevails

PURPOSE

The purpose of the Remedial Investigation (RI) is to determine the nature and extent of contamination at the Beloit Corporation Site. The Feasibility Study (FS), based upon the RI report, will evaluate potential remedial alternatives. Beloit Corporation will furnish all personnel, materials, and services needed to perform the RI/FS at the site.

The Tasks described herein are grouped into the following three categories:

- Plans and Management,
- Remedial Investigation (RI), and
- Feasibility Study (FS).

PLANNING DOCUMENTS AND RI/FS WORK PLAN

Task 0 - RI/FS Work Plan Preparation

A. SITE EVALUATION REPORT

Use of existing data will be optimized in scoping the Work Plan to the extent practicable. Data gaps evident from a review of this data may be considered in the Work Plan and tasks will be developed to gather the information necessary to support the Baseline Risk Assessment (BRA) and the FS.

A Site Evaluation Report (SER) will be prepared to describe the existing conditions at the site and provide a basis for the Work Plan approach. The SER will gather data from Beloit Corporation's and the Illinois Environmental Protection Agency's (IEPA) files to

summarize results for the studies directed specifically toward the site. Regional data on the geology, groundwater, surface water flow, and sediment quality will be collected from:

- Published literature (e.g., UCS, USGS, NOAA, etc.);
- IEPA's available records for data collected on other potential source areas in the site vicinity;
- Aerial photographs.

The SER will contain available information to describe facility background, history of response actions, nature and extent of problem, identification of boundary conditions, and previously generated maps which will illustrate relevant features on and near the facility.

1. Site Background

A summary will be prepared describing the regional setting, pertinent facility boundary features, and general physiography, hydrology and geology.

2. History of Response Action

A summary will be prepared of previous response actions conducted by either local, state, federal or private parties, including the site inspection and other technical reports, and their results. A list of reference documents will be included. The scope of the RI should be developed to address the problems and questions that have resulted from previous work at the site.

3. Nature and Extent of Problem

A summary of the actual and potential health and environmental effects both on and off the facility will be prepared. This may include, but is not limited to the types, physical states and amounts of hazardous substances, the existence and conditions of features specific the facility (e.g., landfills, lagoons, etc.), affected media and pathways of exposure, and contaminated releases such as leachate or runoff. Emphasis should be placed on describing the threat or potential threat to public health and the environment.

4. Define Boundary Conditions

Facility boundary conditions have been established by IEPA and USEPA to limit the areas of facility investigations. The boundary conditions are set so that subsequent investigations will cover the contaminated media in

sufficient detail to support subsequent activities (e.g., the FS, etc.). The boundaries may also be used to identify areas for facility access control and site security.

5. Facility Map

A site map will be prepared showing all wetlands, floodplains, water features, drainage patterns, tanks, buildings, utilities, paved roads, easements, rights-of way, and other pertinent facility features. The facility may for the SER may not be to scale; a detailed facility survey and base map preparation are planned for the RI (Task 1).

The legal descriptions of the properties will be reviewed. The intent is not to perform a property boundary survey, but to confirm boundaries so that subsequent remedial investigations and/or remedial measures will not carry over on to neighboring properties without appropriate permission.

The SER will be submitted 10 days after entry of the Consent Decree. IEPA and USEPA will review the document and provide guidance and comments to the best extent possible. Information contained in the SER may be included in Task 1 of the RI.

A Work Plan scope may be prepared for the RI/FS which will include the elements contained in the SOW. This Work Plan scope may be prepared based on the information previously collected and analyzed in the SER. The tasks of the Work Plan scope may preliminarily specify the work to be conducted in discrete steps and will include data evaluation and reporting steps that may be used in the Work Plan. This scope may also include a discussion of the technical approach, data quality objectives, personnel requirements and schedules to be used in the Work Plan.

The Work Plan scope may be submitted to IEPA and USEPA for review prior to the preparation of the Work Plan. The agencies will review this scope and provide guidance and comments to the best extent possible.

Agency guidance and comments relating to the Work Plan scope and SER will concur with the development of the Work Plan.

7. coincide

B. WORK PLAN

Prepare a Work Plan for the Remedial Investigation/Feasibility Study including the elements contained in this Statement of

Work (SOW). The Work Plan shall include a detailed discussion of the technical approach, personnel requirements and schedules as well as the following:

1. Field Sampling Plan

A Field Sampling Plan will be prepared to address field activities necessary to obtain additional site data. The plan will contain:

- an evaluation of additional data required to adequately characterize the site, evaluate the No Action Alternative, and support the FS;
- a statement of sampling objectives;
- specification of equipment, analyses of interest, sample types, and sample locations and frequency;
- a sampling and analysis schedule compatible with mutually agreeable target dates for the project.

The Plan will consider the use of field screening techniques to screen out samples that do not require laboratory analysis off the facility.

The Plan will preliminarily consider potential remedial technologies and associated data that may be needed to evaluate alternatives for the FS.

2. Quality Assurance Project Plan

A Quality Assurance Project Plan (QAPP) for the sampling, analysis and data handling aspects of the RI will be prepared and submitted for IEPA review/approval. The Plan will be consistent with the requirements of current USEPA and State guidance regarding the preparation of QAPPs.

The QAPP will address the types of investigations conducted at the site (e.g., waste characterization, hydrogeologic, soils and sediments, air, and surface water).

Quality assurance/quality control (QA/QC) criteria will be specified and will be supported with appropriate discussion identifying the applications and limitations of such criteria.

3. Health and Safety Plan

A Health and Safety Plan will be prepared to address hazards that the investigation activities may present to the investigation team and to the surrounding community. The plan will address all applicable regulatory requirements and detail personnel responsibilities, protective equipment, procedures and protocols, decontamination, training, medical

surveillance. The plan will identify problems or hazards that may be encountered and their solutions. Procedures for protecting third parties, such as visitors or the surrounding community, will also be provided. The plan will be consistent with, but not limited to:

- Section III(c) of CERCLA
- USEPA Order 1440.2 -- Health and Safety Requirements for Employees Engaged in Field Activities
- USEPA Order 1440.3 -- Respiratory Protection
- USEPA Occupational Health and Safety Manual
- USEPA Interim Standard Operating Safety Procedures
- 29 CFR Part 1910.120 OSHA Standards: Hazardous Waste Operations and Emergency Response
- Site Conditions

4. Data Management Plan

A Data Management Plan will be developed to document and track investigation data and results. This plan will identify and set up laboratory and data documentation materials and procedures, project file requirements, and project-related progress.

5. ATSDR Health Assessment

The findings and conclusions of the Health Assessment, which had already been prepared by the Illinois Department of Public Health ATSDR will, if finalized, be addressed in the RI report.

6. Baseline Risk Assessment Plan

A Baseline Risk Assessment Plan (BRAP) will be developed and submitted to the IEPA for its approval. The BRAP will provide methodology for gathering quantitative and qualitative information on the human health and environmental risks posed by the facility. The procedures to be followed when performing the BRAP for this facility are contained in:

- The NCP;
- USEPA's RI/FS Guidance: "Interim Final Risk Assessment Guidance (RAG) for Superfund, Volume I, Human Health Evaluation Manual" (Part A) (EPA/540/1-89/002) (December 1989);
- "Interim Final Risk Assessment Guidance for Superfund, Volume II, Environmental Evaluation Manual" (EPA/540/1-89/001) (March 1989); and

- USEPA's Integrated Risk Information System (IRIS), as well as updates to these documents, data bases, or additional RAG volumes.

The preparation of these plans will result in draft documents. The plans will be submitted to the IEPA. Beloit Corporation's consultant will respond to comments made by IEPA, as appropriate, and issue a final version of the documents.

In the event that the BRAP is disapproved by the IEPA, IEPA may elect to perform the BRA pursuant to USEPA's guidance "Performance of Risk Assessments in Remedial Investigation /Feasibility Studies Conducted by Potentially Responsible Parties". IEPA would perform the work necessary for completion of the BRA as data is generated and made available from the Site Investigation by Beloit Corp. The BRA would then be published after the RI is finalized.

REMEDIAL INVESTIGATION

The objectives of the RI are to:

- Identify potential site source(s) and determine the characteristics and extent of contamination at the facility;
- Define the pathways of contaminant migration and evaluate potential for impacts off the facility;
- Define the physical features that could effect contaminant migration, containment or remediation;
- Characterize risk to public health and the environment; and
- Gather information necessary to support the FS.

RI Scope

The RI consists of the following tasks:

Task 1 - Description of Current Situation and Monitoring Well Inspection
Task 2 - Site Investigation
Task 3 - Site Investigation Analysis
Task 4 - Laboratory and Bench-Scale Studies
Task 5 - Community Relations Support
Task 6 - Project Management/Reports

Task 1 - Description of Current Situation and Monitoring Well Inspection

Describe the background information pertinent in previous investigations and evaluated in the SER and outline the purpose for the RI at the facility. Data gathered during the previous investigations or inspections, and other relevant data may be used, providing the data meets the requirements for use in the RI Report.

a. Site Background

A summary will be prepared describing the regional setting, pertinent facility boundary features, and general site physiography, hydrology and geology.

b. History of Response Action

A summary will be prepared of all previous response actions conducted by either local, State, Federal or private parties, including the site inspection and other technical reports, and their results. A list of reference documents and their sources will be included. The scope of the RI should be developed to address the problems and questions that have resulted from previous work at the site.

c. Nature and Extent of Problem

Prepare a summary of the actual and potential health and environmental effects both on and off the facility. This may include, but is not limited to, the types, physical states and amounts of hazardous substances, the existence and conditions of site-specific features (i.e. landfills and/or lagoons), effected media and pathways of exposure, contaminated releases such as leachate or runoff and any human and/or environmental exposure. Emphasis should be placed on describing the threat or potential threat to public health and the environment.

d. Define Boundary Conditions

Boundary conditions to limit the areas of facility investigations have been established The boundary conditions should have been set so that subsequent investigations will cover the contaminated media in sufficient detail to support subsequent activities (e.g., the FS, etc.). The boundaries may also be used to identify areas for site access control and site security.

e. Site Map

An accurate topographic map of appropriate working scale and contour interval will be prepared. The base map of the facility will be prepared from this topographic map and will

illustrate the locations of wetlands, floodplains, water features, drainage patterns, tanks, buildings, utilities, facility boundaries, paved areas, easements, rights-of-way, and other pertinent features. Larger scale maps will be produced from the base mapping, as necessary.

A site survey will be conducted to establish vertical and horizontal controls relative to the National Geodetic Vertical Datum of 1929. In addition to the topographic map, a grid plan will show the location of existing monitoring wells and may be used to identify subsequent sampling locations as identified during the RI. Subsequent survey work will be completed under various RI activities to document sample location.

8. Monitoring Well Inspection

Task 2 - Site Investigation

Investigations ~~Necessary~~ will be conducted to characterize the ~~site~~ facility and its actual or potential hazard to public health and the environment. The investigations should result in data of adequate technical content to support the BRA and development and evaluation of remedial alternatives during the FS. Investigation activities will focus on problem definition and data to support the screening of remedial technologies, alternative development and screening, and detailed evaluation of alternatives.

The goals of the site investigation are to:

- Fully characterize the chemical nature of the wastes at the site;
- Investigate and characterize potential contaminant sources at the facility;
- Evaluate the vertical and horizontal extent of contamination originating at the site;
- Spatially quantify contamination to the extent necessary to enable preparation of a BRA and the FS;
- Identify contaminant migration pathways and movement; and
- Characterize public health and environmental risk associated with facility-related hazardous substances.

The site investigation activities will follow the Work Plan. Sample analyses will be conducted at laboratories following IEPA and USEPA protocols or their equivalents. Strict chain-of-custody procedures will be followed and samples collected for analysis will be located on the site map established under Task 1.

Samples collected may be analyzed for the Contract Laboratory Program (CLP) Hazardous Substance List (HSL).

The Work Plan developed pursuant to this Statement of Work may propose alternative methods of achieving the goals of the Site

although the activities provides activities which are to satisfy the goals,

Investigation.

A. Source Characterization

Investigations will be carried out to characterize the physical and chemical aspects of potentially contaminated source areas, the materials in which they are contained, and the surrounding materials. The source investigation will involve data related to the type, quantity, chemical and physical properties, and concentrations from potentially contaminated areas. It is anticipated that this information will be obtained from a combination of existing facility information, field inspections, preliminary screening techniques and facility sampling techniques.

The source(s) of contamination have not been identified by previous studies conducted at the facility. In characterizing the source(s), preliminary screening methods (e.g., soil gas analysis, geophysical techniques, etc.) may be employed initially to help locate sources. If a compatible geophysical technique is identified, a survey may also be used to locate subsurface conditions which may indicate preferential groundwater flow paths within the surficial aquifer.

Evaluations of the facility may consider the potential for identifiable operable units during the source characterization step. If identified, the operable units may be evaluated in conjunction with the Site Investigation.

B. Migration Pathway Assessment

Migration pathways at the Beloit Corporation facility will be characterized through the following investigations:

1. Hydrogeologic Investigation

A hydrogeologic study will be performed to evaluate the subsurface geology and characteristics of the water bearing formations. The study will define the facility hydrostratigraphy, controlling geologic features, potential for preferential groundwater flow, and hydraulic heads within the water bearing formations. The study should also predict the long term disposition of contaminants if they migrate to the groundwater.

The survey should address the degree of hazard, the mobility of pollutants, the soils' attenuation capacity and mechanisms, discharge/recharge areas, regional flow directions and quality, and effects of any pumping alternatives that are developed, if applicable. This study may address existing

facility data as described in the SER and information obtained from the Source Characterization to define groundwater flow patterns. In addition, the results of this investigation will assist in forming the rationale for locating and designing monitoring wells and the subsequent Contaminant Characterization.

A technical description of all methods to be used in gathering data for this study will be included. This should include a diagrammatic representation of proposed monitoring well locations, design and construction, information on materials, drilling techniques and well development methods.

2. Municipal and Residential Well Samples

A survey will be conducted to identify those residences and establishments who (1) utilize wells completed in the hydrogeologic flow system, and (2) are not serviced by municipal water supplies. From this information, a sampling and analysis program will me developed to obtain water quality from representative wells that could be impacted by facility-related hazardous chemicals. The data may also be used to evaluate groundwater quality and other sources within the site.

3. Soils Investigation

The physical and chemical characteristics of surface and subsurface soils at the facility will be evaluated to determine the location and extent of contamination. This investigation may overlap with certain aspects of the Source Characterization and Hydrogeologic Investigation (e.g. characteristics of soil strata are relevant to both the transport of contaminants by groundwater and to the location of contamination in the soil, cores from groundwater monitoring wells may serve as soil samples).

To further characterize the horizontal and vertical extent of contaminated soils at the facility, information on local background levels, location of samples, techniques utilized, and methods of analysis should be included. The investigation should identify the locations and probable quantities of subsurface wastes ~~(i.e. drums)~~ through the use of geophysical surveys and subsequent sample collection.

4. Surface Water and Sediment Investigation

Drainage patterns and runoff characteristics will be evaluated for the potential of erosional transport. The physical and chemical characteristics of the sediments may be evaluated, if determined to be necessary. Staff gauges may be used to evaluate the hydraulic relationship between the Rock River and

the groundwater flow system.

A survey of data on surface water flow quantity and quality and the relationship between the facility and contamination, information on local background levels, locations and frequency of previous sampling events, sampling procedures, and methods and types of analyses will be particularly useful.

C. Contaminant Characterization

Data generated from the Migration Pathway Assessment and Source Characterization may be used in conjunction with data from the SER to design an environmental sampling and analysis program. The objective of this program is to evaluate the extent and magnitude of contaminant migration along all potential pathways of concern at the facility.

Monitoring points will be installed in each appropriate media identified as a potential migration pathway. The monitoring network may incorporate several of the piezometers and/or staff gauges installed during assessment of potential migration pathways.

The analytical parameters list will be based on the data collected during the Source Characterization and review background information. The selection of parameters or classes of parameters (e.g., volatile organics, metals, etc.) will be based upon their source characterization and their persistence and mobility within potential pathways of migration. Provisions will be made for conducting full Target Compound List (TCL) analyses at those monitoring stations where there is a possibility of detecting contamination. Samples will be collected, handled, and analyzed in accordance with the protocols and procedures described in the Work Plan.

Task 3 - Site Investigation Analysis

Information obtained during the course of the RI will be evaluated in Task 3 and will be presented in the RI report. The Site Investigation Analysis will include the items below:

A. A quality assurance and data sufficiency evaluation will be performed. The purpose of this subtask will be to evaluate that the data quality (e.g. QA/QC procedures have been followed) and quantity to support the BRA and the FS.

The QA/QC and data sufficiency evaluation will be presented to IEPA as a part of the RI report. The QA/QC evaluation will determine whether the data met the requirements of the QAPP. The QA/QC evaluation will be performed in accordance with current State and Federal guidance. Once the data validation

step is completed, the sufficiency review will evaluate whether the remaining data meet the objectives of the RI.

B. An analysis and summary of all site investigations and their results will be prepared in the Site Investigation analysis. The results and data from these investigations will be organized and presented logically so that the relationship between site investigations for each medium are apparent. Site Investigation data will be analyzed to develop a summary of the type and extent of contamination at the facility.

C. The BRA will be prepared to evaluate the actual or potential threat to public health, welfare, or the environment presented by the No-Action Alternative. Actual or potential risks associated facility-related chemicals will be quantified whenever possible. A general outline of work for the BRA is as follows:

- Select target chemicals for evaluation based on their degree of contribution to the risks associated with the site

- Conduct exposure assessments that include the identification of acute and chronic hazards of concern and the population(s) at risk.

- Evaluate existing toxicity information and assess the potential for acute and chronic effects of the facility-related contaminants as well as specific effects such as carcinogenicity, reproductive dysfunction, teratogenicity, neurotoxicity and other metabolic alterations; plus the effect on aquatic and terrestrial wildlife posed by facility-related substances.

- Assess impact by identifying acceptable exposure guidelines or standards, comparing estimated doses with these guidelines or standards. For target chemicals at the site that are designated as carcinogens by USEPA, Agency evaluations and techniques should be utilized to estimate the increase in cancer risks.

- Sources and magnitude of uncertainties generated in the risk assessment process may be identified as recommended by USEPA guidance. This activity will evaluate the impact on the analysis of uncertainties propagated through the BRA and FS.

The BRA will be conducted in accordance with the procedures described in USEPA's risk assessment guidance, Risk Assessment Guidance for Superfund: Volume I: Human Health Evaluation Manual and Risk Assessment Guidance for Superfund: Volume II: Ecological Effects Manual.

Task 4 - Laboratory and Bench Scale Studies

If needed, laboratory and/or bench-scale studies will be used to determine the applicability of remedial technologies to site conditions and problems. The analysis of technologies will be based on a literature review, vendor contracts and past experience to determine the testing requirements. This task should not be initiated until sufficient evidence of contamination exists to warrant a screening of alternatives for remediation purposes. Laboratory and bench-scale studies will be conducted for processes that may be applicable as remediation technologies

A testing plan will be developed identifying the type(s) and goal(s) of the study(ies), the level of effort needed, and data management and interpretation guidelines for submission to IEPA and USEPA for review and approval.

Upon completion of the testing, the results will be evaluated to assess the technologies with respect to the site-specific questions identified in the testing plan. Scale up those technologies selected based upon review and approval of test results by the IEPA Project Manager.

If laboratory and bench-scale testing is required, a report summarizing the testing program and its results, both positive and negative will be prepared. This report, along with other technical memoranda, will be inserted into the RI Report after review and concurrence by the IEPA Project Manager.

Task 5 - Community Relations Support

Community relations support shall be planned and implemented by the IEPA and USEPA consistent with ~~this SOW~~ the AOC.

Task 6 - Project Management/Reports

Responsibilities of Beloit Corporation's Consultant Project Manager throughout the RI/FS include:

- Working with IEPA to plan the scoping and scheduling for the RI/FS
- Maintaining the timely completion of scheduled activities and the cost-effectiveness of each activity
- Keeping IEPA and USEPA informed of project schedules
- Maintaining project quality control and quality assurance
- Monitoring subcontractors
- Preparing monthly progress reports of technical status
- Evaluation of documentation and graphics for compliance

with IEPA and USEPA standards

Reports for the RI can be classified as follows:

a. Progress Reporting Requirements

Monthly reports shall be prepared by Beloit Corporation's Consultant to describe the technical progress of the project. These reports should discuss the following items:

1. Identification of site activities,
2. Status of work at site,
3. Schedule status,
4. Difficulties encountered during the reporting period,
5. Actions being taken to rectify problems,
6. Activities planned for the next month,
7. Changes in personnel.

The monthly progress report will list target and actual completion dates for each element of activity, including project completion, and will provide an explanation of any deviation from the milestones in the Work Plan.

b. Technical Memoranda

The results of specific RI activities (such as the Migration Pathway Assessment, Source Characterization, Baseline Risk Assessment, etc.), will be submitted in draft form to IEPA and USEPA throughout the RI process. Responses to Agency comments concerning memorandum issues will be addressed in letters from the Beloit Corporation's Consultant Project Manager to the IEPA and USEPA Project Managers, ~~and will be summarized in the draft RI Report.~~ The specific technical memoranda and their associated schedules for submittal will be identified on the RI/FS Work Plan (Task 0).

c. Remedial Investigation Report

A draft report covering the Remedial Investigations (the RI Report) will be prepared. The RI Report will characterize the facility and summarize the data collected and the conclusions drawn from the investigative Tasks 1 through 3. The Report will be submitted in draft form to IEPA and USEPA for review and comment. Following receipt of comments, a draft final report will be prepared and submitted. The RI Report will not

be considered final until a letter of approval is issued by the IEPA Project Manager.

FEASIBILITY STUDY (FS)

SCOPE

The purpose of the Beloit Corporation Feasibility Study (FS) is to develop and evaluate remedial action alternatives based on the results of the RI and BRA that will mitigate impacts to public health and welfare of the environment resulting from exposure to facility related hazardous substances. Beloit Corporation and their consultants will furnish the necessary personnel, materials and services to prepare the FS except as otherwise specified.

The FS will conform to Section 121 of SARA, the NCP as amended, the RI/FS (October 1988) guidance as amended, and all relevant State and Federal policies.

The FS consists of the following three Tasks:

Task 7 - Remedial Alternatives Screening
Task 8 - Remedial Alternatives Evaluation
Task 9 - Feasibility Study Report

A Work Plan that includes a detailed technical approach and schedules will be submitted for the FS.

TASKS

Task 7 - Remedial Alternatives Screening

This task constitutes the first stage of the FS and is comprised of six interrelated subtasks. The goal is to develop and evaluate remedial alternatives for additional screening and review. The Baseline Risk Assessment results will be considered throughout the evaluation process.

A. Subtask 7a - Preliminary Remedial Technologies

A master list of potentially feasible technologies will be developed that includes remedial technologies both on and off the facility. The master list will be screened according to site conditions, waste characteristics, and technical requirements, in order to eliminate or modify those technologies that may prove extremely difficult to implement, require unreasonable time periods, or rely on insufficiently

developed technologies. The results of this task will be summarized in a Technical Memorandum that will be submitted to the Agencies.

B. Subtask 7b - Development of Alternatives

1. Developing Remedial Response Objectives

Objectives specific to the facility will be developed based on public health and environmental concerns as identified in the BRA for the Beloit Corporation facility, the description of the current situation, information gathered during the RI, section 300.430 of the NCP, USEPA's interim guidance and the requirements of any other applicable USEPA, Federal, IEPA or State standards, guidance and advisories as defined under sections 121 of SARA. Preliminary cleanup objectives in recognition of revised cleanup goals defined in the NCP will be developed under formal consultation with the IEPA and USEPA.

2. Assembling Alternatives for Remedial Action

A comprehensive approach specific to the facility will be developed for a Remedial Action by assembling combinations of identified technologies that include the following:

a. Treatment alternatives for source control that eliminate the need for long term management (including monitoring).

b. Alternatives involving treatment as a principal element to reduce the toxicity, mobility or volume of waste.

c. An alternative that involves containment of waste with little or no treatment but protects human health and the environment primarily, but not limited to preventing exposure to, or reducing the mobility of, the waste.

d. A No Action Alternative.

For groundwater response actions, a limited number of remedial alternatives will be developed within a performance range defined in terms of a remediation level. The targeted remediation level is the risk range of 10^{-4} to 10^{-6} for ~~maximum lifetime risk~~ the reasonable maximum exposure and may include different rates of restoration. If feasible, one alternative that would restore groundwater quality to a 10^{-6} risk for maximum lifetime risk level within five years will be

configured.

The remedial action alternatives developed for the Beloit Corporation Site may involve source control and groundwater response actions. In these instances, the two elements may be formulated together so that the comprehensive remedial action is effective and the elements complimentary. Because each element has different requirements, each will be detailed separately in the development and the analyses of alternatives.

C. Subtask 7c - Initial Screening of Alternatives

1. Initial Screening Considerations

The alternatives developed under Subtask 7b will be subjected to an initial screening to narrow the list of potential remedial actions for detailed analyses; the rational for eliminating alternatives will be included. Initial screening considerations include:

a. Effectiveness - degree to which the alternative protects human health and the environment; attains State and Federal applicable or relevant and appropriate requirements (ARARs) or other applicable criteria, advisories, or guidance; significantly and permanently reduces toxicity, mobility or volume of hazardous constituents and are technically reliable and effective in other respects. Reliability considerations include the potential for failure and the need to replace the remedy.

b. Implementability - degree to which the alternative is technically feasible and employs available technologies; the technical and institutional ability to monitor, maintain and replace the technology over time, and the administrative feasibility of implementing the alternative.

c. Cost - evaluation of construction and long-term costs to operate and maintain the alternative based on conceptual costing information. At this stage of the FS, cost will be used as a factor when comparing alternatives that provide similar results, but not when comparing treatment and non-treatment alternatives. However, cost will be a factor in the final remedial selection process. ~~as described in Subtask 8b.~~

2. Intent of Alternatives Screening

The initial screening of alternatives incorporating treatment will be conducted with the intent of preserving the most promising alternatives as determined by their

likely effectiveness and implementability. The screening should result in a range of alternatives remaining for future analyses as described previously in Subtask 7b(2).

Innovative alternative technologies will be carried through the screening if there is a reasonable belief they offer either the potential for better treatment performance or implementability, fewer or less adverse impacts than other available approaches or lower costs for similar performance than the demonstrated technologies.

The containment and No Action Alternatives will be carried through the screening process to the detailed analyses.

D. Subtask 7d - Remedial Alternatives Array Document

To obtain ARARs from the Agencies, a detailed description of alternatives (including the extent of remediation, containment levels to be addressed and method of treatment) will be prepared. This document will also include a brief site history and background, a site characterization that indicates the contaminants of concern, migration pathways, receptors and other pertinent site information. A copy of this Alternatives Array Document will be submitted to IEPA and USEPA along with a request for a notification of standards. The Alternatives Array Document will encompass the alternatives specified in Subtasks 7a through 7c.

Subtask 7e - Community Relations Program

A program for community relations support will be developed. The program will be consistent with the Community Relations Program developed under Task 5 and with the conditions set forth in the Consent Decree.

Subtask 7f - Data Requirements

Data requirements specific to the relevant and applicable technologies as presented in the Alternatives Array Document will be identified. These requirements will focus on providing data needed for the detailed evaluation and development of a preferred alternative.

Task 8 - Remedial Alternatives Evaluation

Subtask 8a - Detailed Analyses of Alternatives

1. Evaluation of Alternatives

The action-specific State and Federal ARARs and other criteria, advisories and RI/FS guidance (October 1988) to be used in the analyses and selection of a remedy will

be identified and described. Alternatives will be analyzed in sufficient detail that remedies can be selected from a set of defined and discrete hazardous waste management approaches.

The information needed to compile and evaluate each alternative will be developed. The alternatives will be evaluated for the "nine criteria", which include:

1. Overall Protection of Human Health and the Environment
2. Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)
3. Long-term Effectiveness and Permanence
4. Reduction of Toxicity, Mobility, and Volume Through Treatment
5. Short Term Effectiveness
6. Implementability
7. Cost
8. USEPA acceptance
9. Community Acceptance

2. Comparison of Alternatives

Under this subtask, the alternatives will be compared using the full array of evaluation factors appropriate for the Beloit Corporation facility. Component measures of effectiveness will include the degree to which the alternative is protective to human health and the environment. Where ARAR health based standards are established, they will be used to establish the minimum level of protection at the site. Where such levels do not exist, risk assessments will be used to establish appropriate facility levels. The reliability of the remedy, including the potential need for the cost of replacement, will be used as another important element in measuring effectiveness.

Measures specific to the facility may also include other health risks borne by the effected population, population sensitivities and impact on environmental receptors. If a groundwater response is appropriate for the facility, the potential for the spread of the contaminant plume and

the technical limits of aquifer restoration will be used as measures of effectiveness. Another important measure of effectiveness is the degree to which the mobility, toxicity or volume of the substance, pollutant or contaminant is reduced.

Component measures of implementability that will be considered include the technical feasibility of the alternative, the administrative feasibility of implementing the alternative and the availability of any needed equipment specialists or capacity outside of the facility. Specific measures for groundwater remedial actions will include the feasibility of providing an alternate water supply to meet current groundwater needs, the potential need for use of groundwater as a future resource in the study area and the effectiveness and reliability of institutional controls.

Subtask 8b - Preferred Remedy

The evaluation of alternatives to select the appropriate remedy will be in accordance with the NCP. The selected alternative will represent the best balance across all evaluation criteria as determined by IEPA in consultation with USEPA.

Task 9 - Final FS Report

The FS Report will be prepared in a draft report and submitted to IEPA and USEPA for review and comment. Upon receipt of comments, a draft final FS Report will be prepared and submitted. The FS Report will not be considered final until a letter of approval is issued by the IEPA Project Manager. Deliverables and technical memoranda submitted previously will be summarized and referenced in order to limit the size of the report. The report will completely document the FS and the process by which the recommended remedial alternative was selected.